

What is claimed is:

- [c1] 1.A method for performing address computation for a data structure address command in a communications processor, comprising:
providing a library of read commands and write commands for a network processor in a rings based architecture;
including an option bit in the read commands and write commands for an address calculation modification mode;
providing an agent module for forwarding read requests and write requests to a DMA controller in response to requests including an address issued by the network processor; and
modifying the value of the address when the option bit is set before forwarding the read requests and write requests to the DMA controller.
- [c2] 2.The method of claim 1, wherein modifying the value of an address comprises automatically computing a destination address using a base address, an offset, and an address modifier.
- [c3] 3.The method of claim 1, wherein modifying the value of an address allows computation of the destination address using a single read command or write command.
- [c4] 4.The method of claim 1, wherein the method permits repeated accesses to an external data structure without recomputing the destination address in its entirety each time.